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A crown of many-tinted sanctities.
 Thy beauty, goodness, and pure innocence,
 Thy faculty of vision, gift divine,
 Rushed round thee as a glory—thou wert seen
 With all thy laurels round thy honoured tomb.
 Thine is no pile of unrecording stone—
 Pale marble column or tall pyramid,
 That vainly robs oblivion of its prey;
 Thy name lives on each lip—thy monuments
 Are treasures fondly kept midst precious things,
 Sought out in every land which the sun warms
 To nobler thoughts—thine are perennial wreaths
 Of trophies yet surviving, when the fame
 Of fields that rang through Europe, and made pale
 The peaceful hamlets of an hundred realms,
 Have shrunk within the fretted register,
 The silent scroll, named History—still the halls
 Of national state or regal pomp are bright
 With thy far-sought creations, costliest
 Among the treasured trophies of the mind;
 And as thy time on earth was consecrated
 To sacred labours meet for holy walls—
 So would I deem thy gifted spirit still,
 Invested in its light of heavenly thoughts,
 The minister of some pure temple, where
 No human errors mingle with the work.

ON THE POWER OF FLUIDS.

THAT weight is a property of liquids, has been acknowledged by the earliest observers; but the amount of that weight, its mode of acting, and application to practice, have been left for recent times to discover. A pint of water weighs somewhat more than a pound avoirdupois; and one unacquainted with the facts in hydrostatics might deem it of little consequence what shape the vessel that contained it might be, or what the disposition and length of the column of water—for, after all, what is it but a pound of water? No idea can be more erroneous. Under most circumstances, it is not so much the quantity of the fluid as the manner in which its particles are disposed, that determines its weight; and what may appear still more extraordinary, a small quantity of fluid may be made to balance, that is, to be of the same apparent weight as, a very large quantity. This may be proved by taking a pair of scales, putting a tumbler full of water into one dish, and balancing it by weights in the other, then inverting a smaller glass and immersing it in the tumbler, having the glass perfectly supported in the hand to prevent it touching the sides or bottom; a portion of the water will now flow over the sides of the tumbler—say one-half—yet the scales are still balanced; one-half of the water is of the same weight apparently as the whole. A piece of wood may be used instead of the glass with the same result, and it may be of a size nearly to fill the cavity of the tumbler; yet if the remaining water, which may amount to no more than a couple of spoonfuls, rise to the same level as it did when full, it will exactly balance the weights. This cannot be accounted for by saying that the wood or the glass was equal to the water displaced, for if we use lead, which is much heavier, or cork, and even card, which are much lighter, we shall meet with no difference. This property belongs to the water; and as the only constant fact was the same height of the fluid, to it must the explanation be referred; and we thus arrive at a first principle, a law in hydrostatics—that the pressure, or weight considered as a power, of any fluid, is not in proportion to its quantity, but to its depth.

Aware of this principle, if we wish to use water as a power, we can economize it wonderfully, exerting a great pressure with a small quantity. If we take a small wooden box, water-tight, bore a hole in it, and fill it with water, adapt a long narrow tube to the hole, and fill it up with water, the box will now be burst, and that by the very small quantity contained in the tube. This tube may be a yard long, and very narrow in diameter, not holding more than two ounces of fluid, yet the pressure, being always in proportion to its depth, is the same as if it had been as broad as the box. This pressure amounts to nearly one pound on the square inch for every two feet of water. In the deepest parts of the ocean the pressure must be exceedingly great, so much so that it is probable they are uninhabitable, the pressure being too great for the existence of fishes. This pressure, together with the total absence of light at great depths, renders the existence of vegetable life also a doubtful matter. There is a certain depth beyond

which divers cannot go, owing to the pressure of water on the surface of their chests being greater than the resistance of air inside, respiration being thereby impeded.

A pipe a yard long, and acting on a yard square of fluid, will give a pressure equal to the weight of fifteen cwt. if we use water. Should we use quicksilver, the power of a ton weight may be obtained within the space of a square foot in breadth, by a tube somewhat less than three feet long, and not larger than a common goose quill—the pressure per square inch in these cases depending on the height of the column of fluid.

We can now understand what extensive and sometimes irremediable injury may arise from the collection of a small but lofty column of water, opening into a wide but confined space below. This sometimes occurs when water gets into a narrow chink between buildings, and, finding its way down, opens finally into some cavity under the floor. The pressure exerted here is immense, and there are few bodies able to resist it. It is owing to this that the pipes for conveying water are burst, on account of the pressure exerted on the insides of the pipes; and this occurs the more frequently, the higher the source from which they are filled. In practice, every vessel containing liquid should increase in strength in proportion to its depth. We have no doubt that a process similar to this takes place on the large scale in nature, which is capable of uprooting trees, rending rocks, producing earthquakes; for if we suppose that some collections of water on the surface of a hill have found their way down through crevices into a cavity in the body of the mountain which has no external opening, as long as this cavity remains unfilled no evil arises, but when it and the crevices also are completely filled, the pressure exercised here is so immense, that even the sides of the hill cannot withstand it. Perhaps this occurrence has not been sufficiently noticed in explaining natural phenomena. It is usual to consider earthquakes and volcanoes as solely the result of chemical action, excluding entirely physical agency.

The pressure of water may be rendered visible by blowing through a tube under water into a tall glass jar. The bubble of air, small at the bottom, as it rises, gradually enlarges from the diminution of the pressure.

The hydrostatic bellows, formed upon this principle, consists of nothing more than a water-tight bellows, with a long pipe fixed into the valve aperture. If this pipe be three feet long, and hold a quarter of a pint of fluid, it will exert a pressure sufficient to raise three cwt. laid upon a bellows, the area of the upper side of which is equal to about a square foot and a half. Many are the uses to which this principle might be applied in the several arts.

Bramah's Press is almost the only machine which has been extensively used. By its means solid bars of iron can be cut through with ease. Hay and cotton have been compressed by its means into a very small compass. In the East Indies, where water-power is used, bales of cotton are compressed into one-half the size of those from the West Indies. By its means power may be multiplied, or rather concentrated, a thousand-fold. As commonly made, a man working it may, by using the same force that would raise half a cwt., apply a force amounting to twenty tons to the work in hand; and by varying the proportions of the machine, pressure might be brought to bear upon any body which would be perfectly irresistible.

There is, however, in reality, be it distinctly understood, no power absolutely gained; but the man's force is concentrated, as for instance in compressing the bale of cotton, to an extent which, if the ordinary mechanical powers of the lever or screw were employed, would require the aid of ponderous machinery.

Mr Bramah was therefore greatly mistaken when he published it as the discovery of a new mechanical power; but he invented a beautiful and most effective means of simply accumulating a prodigious force by the very simple means of the hydrostatic pressure of fluids.

Hydraulic or Bramah presses are applied in New York and other American ports for the purpose of raising large vessels on strong wooden platforms out of the water, for effecting repairs, &c. They are also employed in removing houses—some of them brick, and three stories high—from one part of a street to another. In this case strong wooden beams, like the ways used in ship-launching, are placed under the house, and in the direction of the intended site, and hydraulic presses are then employed for pushing the house along, with prodigious force, and so gradually and gently as

not even to crack the plaster of a room ceiling. By the same means the roof of a large cotton factory near Aberdeen was raised *entire*, and an additional story added to the building, without displacing a single slate! In this instance the roof was lifted gradually about four inches at a time, progressing from end to end of the building, the height of the walls being increased by a single row of bricks at a time.

Such are a few of the results of a single principle, a rule to which there is no exception, which holds equally good in the organic as in the inorganic world. Even the blood-vessels of the body are subject to this law—the sides of all vessels below the level of the heart enduring an additional outward pressure of half an ounce for every inch in height, which at the toes would amount to somewhere about two pounds. When a person stands erect in a bath, the pressure on all parts of the body is not equal; it is greater upon the legs than upon the trunk; the former are pressed upward, and hence in part the difficulty experienced in standing upon the bottom in deep water.

T. A.

DISAGREEABLE PEOPLE.—Some persons are of so teasing and fidgety a turn of mind, that they do not give you a moment's rest. Everything goes wrong with them. They complain of a headache or the weather. They take up a book, and lay it down again—venture an opinion, and retract it before they have half done—offer to serve you, and prevent some one else from doing it. If you dine with them at a tavern, in order to be more at your ease, the fish is too little done—the sauce is not the right one; they ask for a sort of wine which they think is not to be had, or if it is, after some trouble, procured, do not touch it; they give the waiter fifty contradictory orders, and are restless and sit on thorns the whole of dinner time. All this is owing to a want of robust health, and of a strong spirit of enjoyment; it is a fastidious habit of mind, produced by a valetudinary habit of body: they are out of sorts with everything, and of course their ill-humour and captiousness communicates itself to you, who are as little delighted with them as they are with other things. Another sort of people, equally objectionable with this helpless class, who are disconcerted by a shower of heaven's rain, or stopped by an insect's wing, are those who, in the opposite spirit, will have everything their own way, and carry all before them—who cannot brook the slightest shadow of opposition—who are always in the heat of an argument, unless where they disdain your understanding so much as not to condescend to argue with you—who knit their brows and roll their eyes and clench their teeth in some speculative discussion, as if they were engaged in a personal quarrel—and who, though successful over almost every competitor, seem still to resent the very offer of resistance to their supposed authority, and are as angry as if they had sustained some premeditated injury. There is an impatience of temper and an intolerance of opinion in this that conciliates neither our affection nor esteem. To such persons nothing appears of any moment but the indulgence of a domineering intellectual superiority, to the disregard and discomfiture of their own and everybody else's comfort. Mounted on an abstract proposition, they trample on every courtesy and decency of behaviour; and though, perhaps, they do not intend the gross personalities they are guilty of, yet they cannot be acquitted of a want of due consideration for others, and of an intolerable egotism in the support of truth and justice. You may hear one of these impetuous declaimers pleading the cause of humanity in a voice of thunder, or expatiating on the beauty of a Guido, with features distorted with rage and scorn. This is not a very amiable or edifying spectacle.

—*Hazlitt's Table-Talk.*

NECESSITY OF A THOROUGH EDUCATION.—Good education being a preparation for social life, necessarily embraces the whole man—body, head, and heart—for in social life the whole man is necessarily called into exertion in one way or another almost every hour. But this is not sufficient. There must be no preponderance, as well as no exclusion: a limited or biassed education produces monsters. Some are satisfied with the cultivation of a single faculty—some with the partial cultivation of each. A child is trained up to working; he is hammered into a hardy labourer—a stout material for the physical bone and muscle of the state. This is good, so far as it goes; but it is bad, because it goes no farther. He is not taught reading; he is not taught religion; above all, he is not taught thinking. He never looks into his other self; he soon forgets its existence; the man becomes all body; his intellectual and moral being lies fallow. The growth of

such a system will be a sturdy race of machines—delvers and soldiers, but not men: so much brute physical energy swinging loosely through society at the discretion of those more spiritual natures to whom their education, neglected or perverted in another way, gives wickedness with power, and teaches the secrets of mind only as instruments to crush or bend men for their own selfish purposes. Others educate the intellectual and moral being only; the physical, once the building is raised, like an idle scaffolding, is cast by. But the omission is injurious—often fatal: malady is laid up, in all its thousand forms, in the infant and the child. It spreads out upon the man. When his spirit is in the flush of its strength, and his moral rivals his intellectual nature in compass and power, then it is that the despised portion of his being rises up and avenges itself for this contempt. The studious man feels, as he walks down life, a thousand minute retaliations for the prodigal waste of his youthful vigour. The body bows down beneath the burden of the mind; it wears gradually away into weakness and incompetency; clouds of sickness, pangs of pain, obscure, distort, weigh it to the earth. Health is not a thing of organization only, but of training; it is to be laid up bit by bit. We are to be made healthy—tutored and practised into health. Omit health in favour of the intellectual and moral faculties, and you provide instruments, it is true, for mind, but instruments which, when wanted, cannot be used. Intellectual and moral education may rank before physical, but they are not more essential; the physical powers are the hewers of wood and the drawers of water for the spiritual. The base of the column is in the earth; but, without it, neither could the shaft stand firm above it, nor the capital ascend to the sky.—*Wyse on Education.*

HOME.—The great end of prudence is to give cheerfulness to those hours which splendour cannot gild, and acclamation cannot exhilarate. Those soft intervals of unbanded amusement, in which a man shrinks to his natural dimensions, and throws aside the ornaments or disguises which he feels in privacy to be useless incumbrances, and to lose all effect when they become familiar. To be happy at home is the ultimate result of all ambition, the end to which every enterprise and labour tends, and of which every desire prompts the prosecution. It is indeed at home that every man must be known by those who would make a just estimate of his virtue or felicity; for smiles and embroidery are alike occasional, and the mind is often dressed for show in painted honour and fictitious benevolence.—*Johnson.*

If it were enacted that only persons of high rank should dine upon three dishes, the lower sort would desire to have three; but if commoners were permitted to have as many dishes as they pleased, whilst the nobility were limited to two, the inferior sort would not exceed that number. An order to abolish the wearing of jewels has set a whole country in an uproar; but if the order had only prohibited earrings to ladies of the first quality, other women would not have desired to wear them.—*The Reflector.*

The very consciousness of being beloved by the object of our attachment, will disarm of its terrors even death itself.—*D'Israeli.*

The petty sovereign of an insignificant tribe of North America every morning stalks out of his hovel, bids the sun good morning, and points out to him with his finger the course he is to take for the day.

Love labour; if you do not want it for food, you may for physic.

Industry often prevents what lazy folly thinks inevitable. Industry argues an ingenuous, great, and generous disposition of soul, by unweariedly pursuing things in the fairest light, and disdains to enjoy the fruit of other men's labours without deserving it.

He who lies under the dominion of any one vice must expect the common effects of it. If lazy, to be poor; if intemperate, to be diseased; if luxurious, to die betimes, &c.

With discretion the vicious preserve their honour, and without it the virtuous lose it.

A good conscience is the finest opiate.—*Knox.*

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